An Effective and Efficient Approach to ARC C Appraisals

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Agenda

- **Appraisal Classes**
- **Why ARC C?**
- **Our Approach**
- **ARC C Tools**
- **Measured Benefits**

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Appraisal Method Classes

- **Appraisal Requirements for CMMI (ARC) introduction**
- **Various requirements for ARC Classes**

Characteristics	Class A	Class B	Class C
Amount of Objective Evidence Gathered (relative)	High	Medium	Low
Ratings Generated	Yes	No	No
Resource Needs (relative)	High	Medium	Low
Team Size (relative)	Large	Medium	Small
Appraisal Team Leader Requirements	Lead appraiser	Lead appraiser or person trained and experienced	Person trained and experienced

Source: CMU/SEI-2001-TR-034

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Why ARC C?

- **Baseline CMMI implementation status for less resources and time than SCAMPI**
- **Establish a common internal benchmarking method**
- **Provide a Go/No Go decision for SCAMPI**
- **Formalized method minimizes the subjectivity associated with different appraisers, different projects**

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Six Sigma

- **Six Sigma methodology was used to analyze the entire CMMI appraisal process – preparation, onsite**
  - Based on 20+ SCAMPIs conducted to date
- **Goal was to reduce the overall time spent**
  - Projects preparing for the appraisal
  - Appraisers conducting the appraisal
- **Also used to increase the stability (predictability) and effectiveness of the appraisal process**
- **Appraisal is viewed as a process that must be measured and continuously improved**

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Our Approach

- **Documented process – an ARC C requirement!**
- **Used to verify gaps at the start of the improvement, and to verify readiness for SCAMPI A**
- **Performed by 1 or 2 qualified appraisers, collaborating with key project personnel**
- **Uses the same evidence notebooks used for SCAMPI A, although may include helping to identify the evidence**
- **Uses our SCAMPI A consolidation and rating tools**

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Using the Results for Appraisal Readiness

- **Typically conducted for appraisal readiness 2 months prior to the SCAMPI A**
- **Have found that if more than 40 practices have insufficient evidence, should delay the appraisal**
  - Should conduct another ARC C appraisal prior to new appraisal date
- **The number of practices that have insufficient evidence greatly impacts SCAMPI A duration**
  - Schedules are built expected 20 or fewer evidence requests

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Infrastructure to Support ARC C Appraisals

Qualified People – SCAMPI Lead Appraisers

SCAMPI ATM trained

Integrated set of tools for evidence gathering, reviews, and reporting

Common documented procedures, standards and templates

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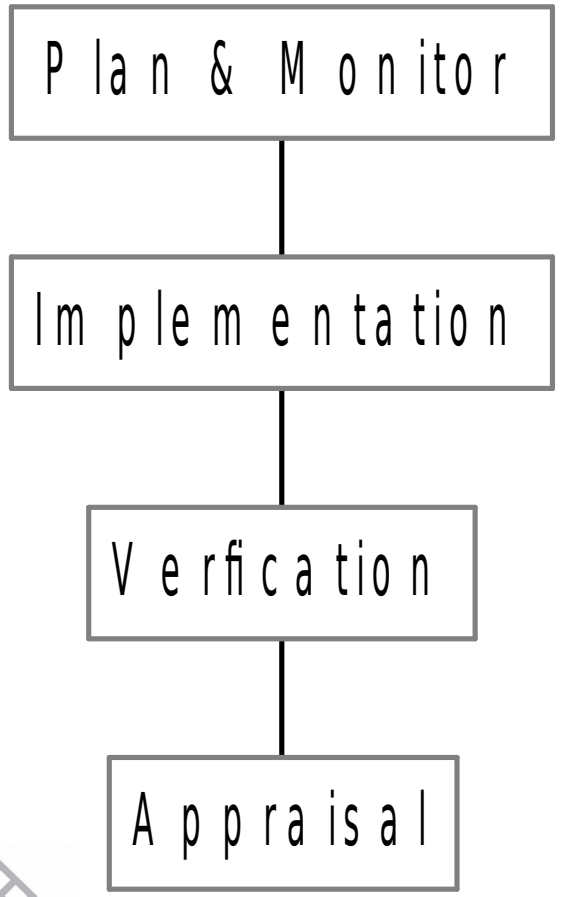
Integrated Set of Tools



- **Self Assessment Tool (SAT)**
  - Projects record gaps against CMMI practices
- **Policy Compliance and Tailoring Report Tool (PCTR)**
  - New projects document intended compliance
- **Audit Checklists**
  - QA verifies compliance with policy & process
- **Appraisal Findings Tool**
  - Appraisers record compliance with CMMI practices

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Benefits of Using Tools

- **Project road map (prepared and owned by project)**
- **Roll up to multiple levels in the organization (aligned with organizational goals)**
- **Common measurement system across the projects**
- **Quantitative – no intuition or judgments**
- **Provides indirect evidence**
- **Clearly defined responsibility for each activity**

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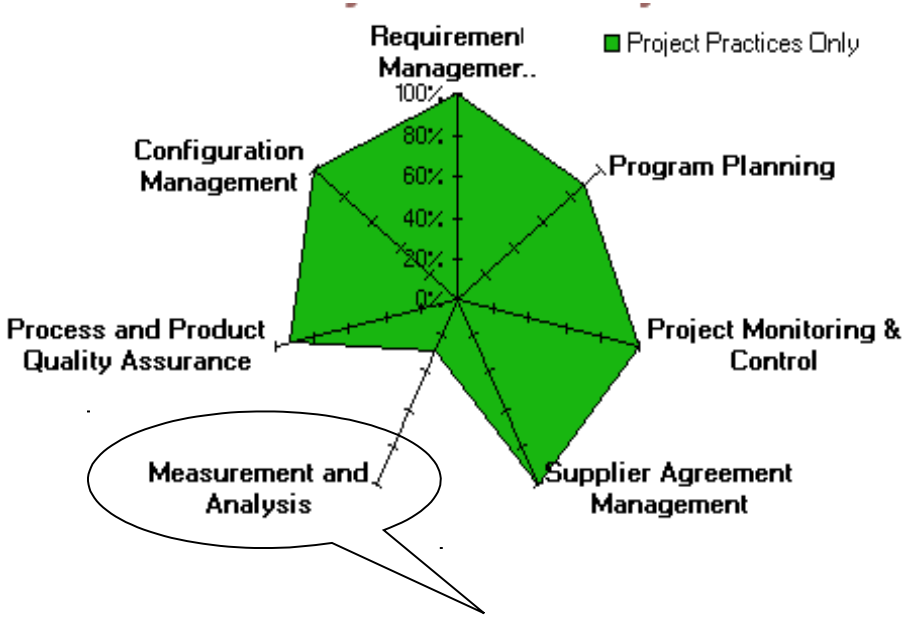
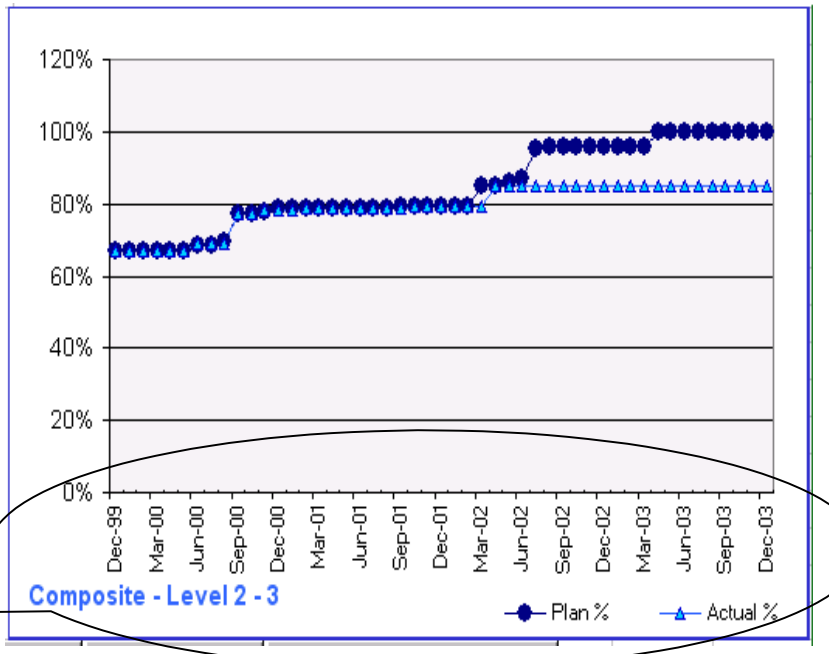
Quantitative Measurement for CMMI Compliance

Self Assessment Tool (SAT)



Identify areas requiring special attention



Planned Vs Actual Progress

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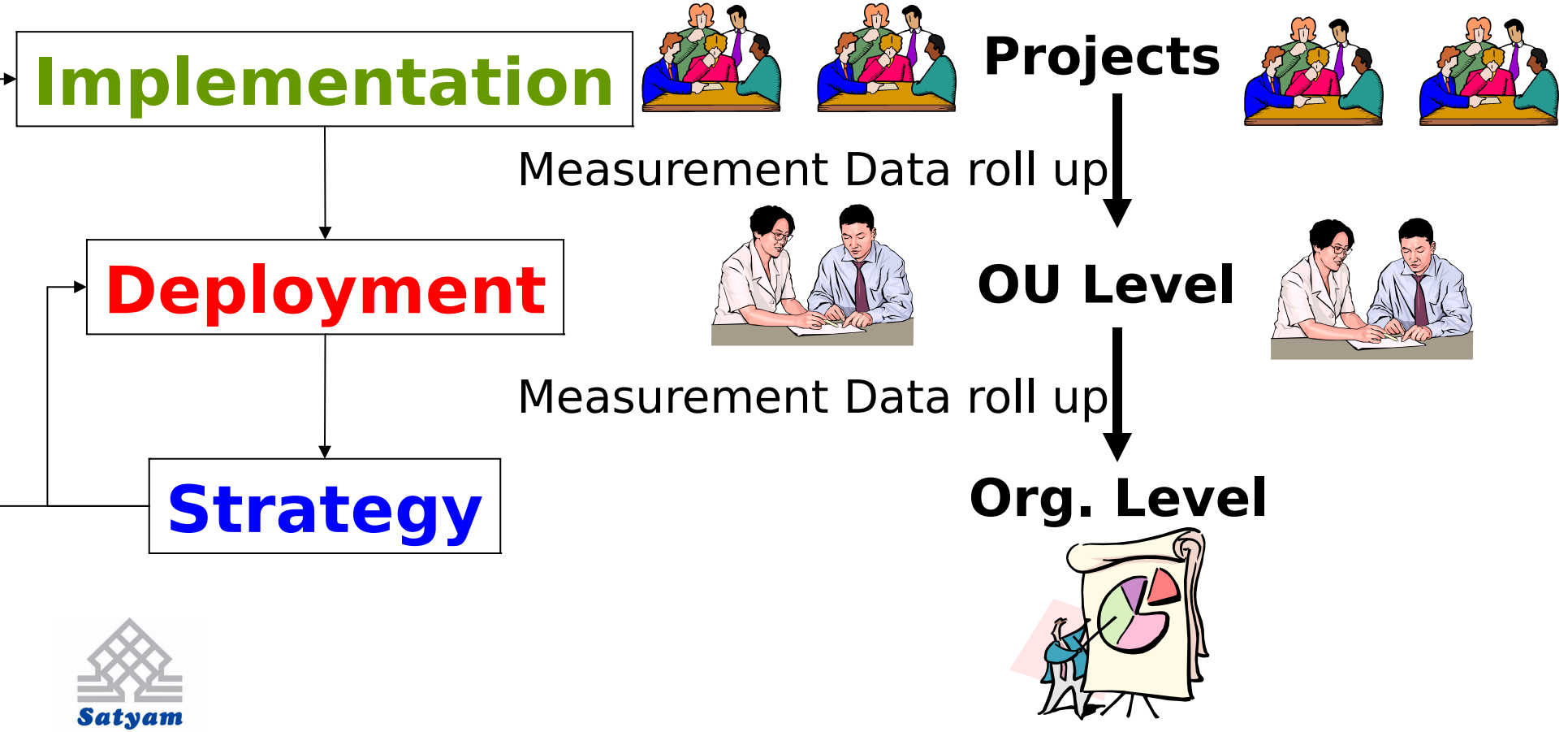
Measurement Data Flow



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Organization Support

- **Defined & documented method for ARC C appraisal at organizational level**
- **Management tracked quantitative measures of CMMI compliance across all levels of the organization**
- **Made ARC C a prerequisite for SCAMPI A**
- **Provided an CMMI interpretations document to ensure common understanding**
- **Provided expert advise, where required**
- **Shared lessons learned through SSEPG meetings, etc.**

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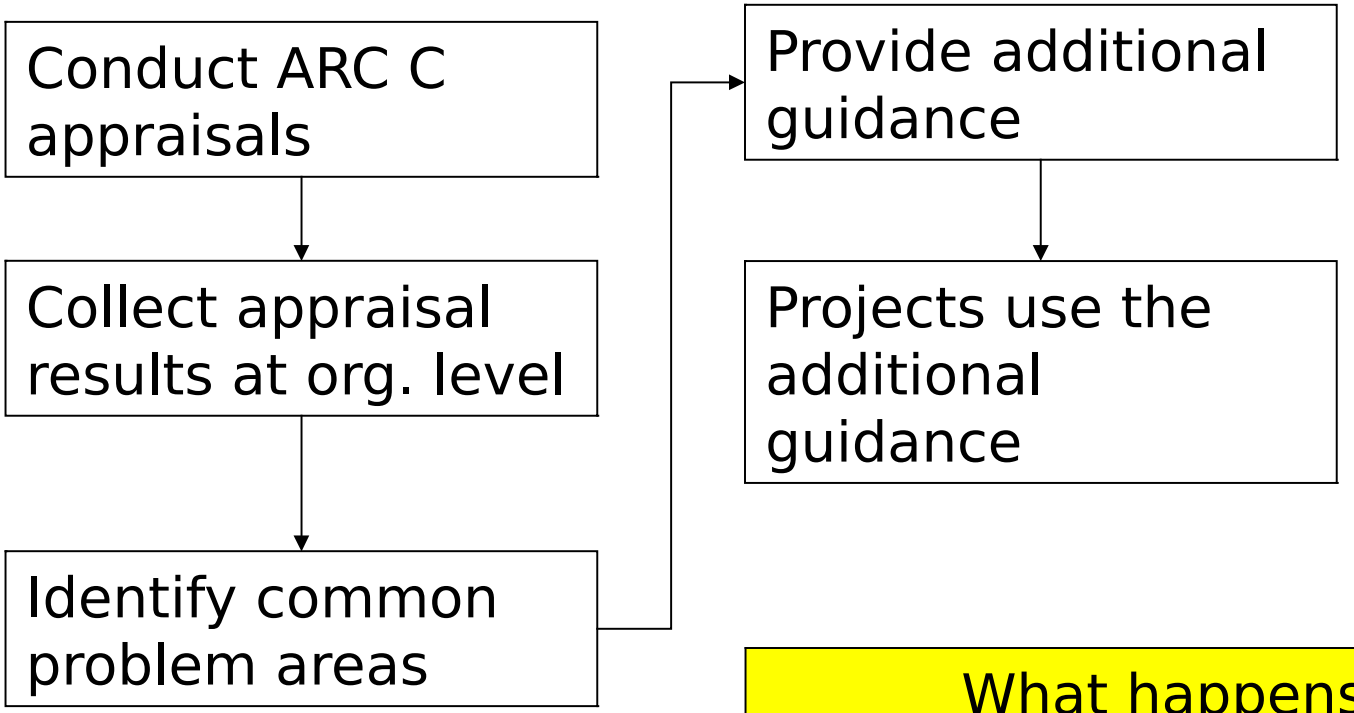
Feedback Input to Organizational Strategy


Conduct ARC C appraisals
Collect appraisal results at org. level
Identify common problem areas
Provide additional guidance
Projects use the additional guidance

What happens if organizations depend only on SCAMPI to provide this feedback to strategy?

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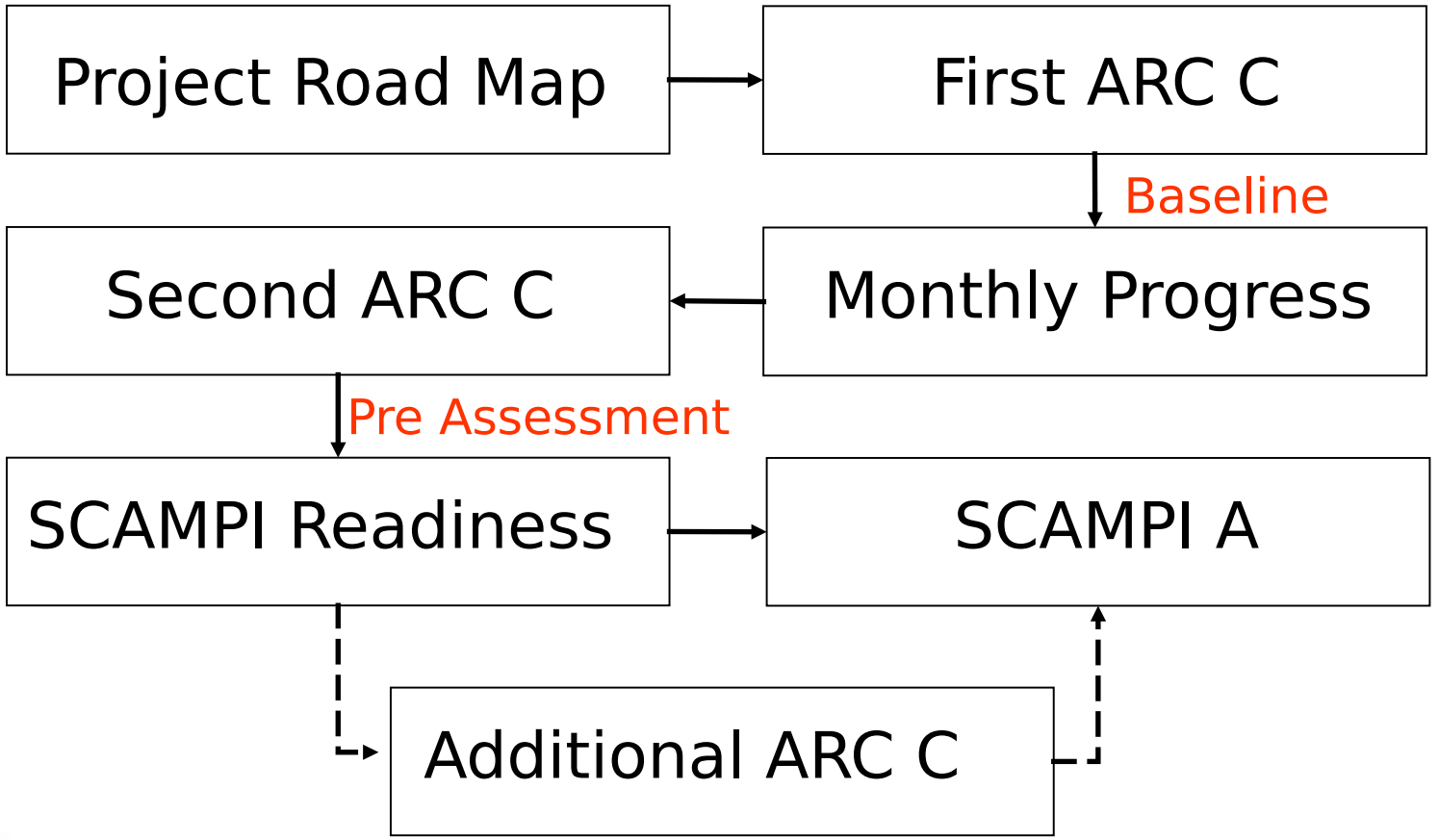
How ARC C Supports our SCAMPIs



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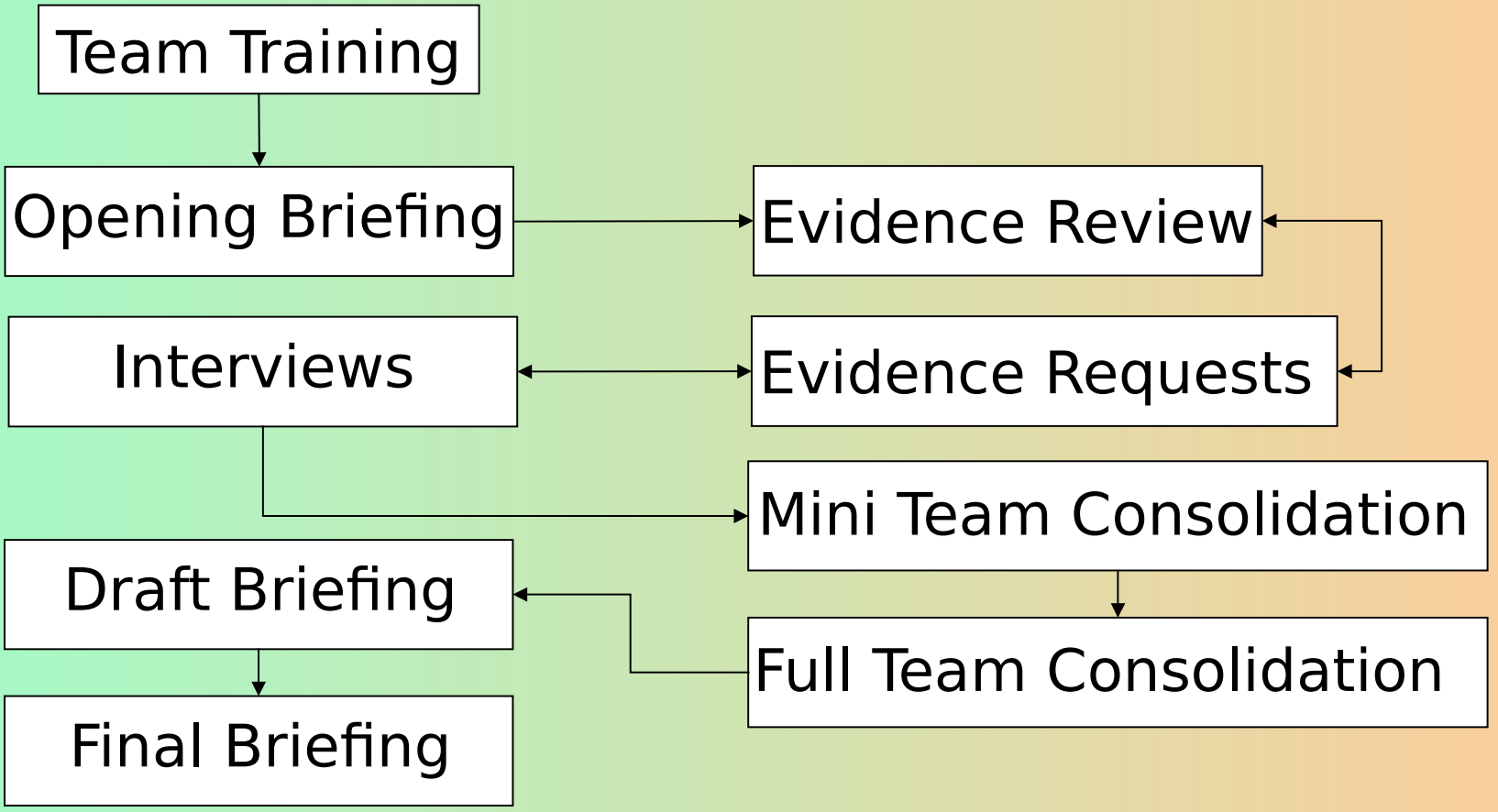
ARC C: Effect on SCAMPI A

Activities with minor or no Impact | **Activities significantly Impacted**



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ARC C: Effect on SCAMPI A (continued)

- **Keeps SCAMPI A in 'verification' mode**
  - Where was maximum time spent in a CBA IPI assessment?
- **Control gate for SCAMPI A – Saves resources (and agony?)**
- **Familiarized project/organization with appraisal process**
- **Majority of model interpretation issues dealt already**
- **Obvious weaknesses are minimized**

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SCAMPI Effort With and Without ARC C

For a Level 3 organization with 3 medium to large projects, and a 10 person SCAMPI A team

SCAMPI with ARC C

- **4 member ARC C team typically spent 150 hours**
- **SCAMPI A appraisal team spent 4**

SCAMPI without ARC C

- **SCAMPI A appraisal team spent 600 hours**

Total Effort 600 Hrs

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Conclusions

ARC C:

- **Provides an efficient and affordable verification approach**
- **Helps identify areas of improvement early**
- **Supports entire CMMI implementation life cycle**